CLAIMS

1. An isolated nucleic acid sequence which comprises a sequence selected from the group consisting of: Sequence ID No.1, Sequence ID No.2, and Sequence ID No 3.

2. An isolated nucleic acid sequence according to Claim 1 in which the nucleic acid sequence is a DNA sequence.

3. An isolated nucleic acid sequence according to Claim 1 or 2 in which the isolated nucleic acid sequence consists of a sequence selected from the group consisting of: Sequence ID No.1, Sequence ID No.2, and Sequence ID No.3.

4. An isolated protein encoded by a nucleic acid sequences according to any of Claims 1 to 3.

5. An isolated protein according to Claim 4 in which the protein is a cell surface glycoprotein.

6. An isolated protein as claimed in Claim 4 or 5 which is an oncofetal protein expressed by an astrocytoma cell.

7. An isolated protein as claimed in any of

Claims 4 to 6 having a molecular weight of approximately 200kda.

8. An antibody which binds specifically to the protein of any of claims 4 to 7, and any other antibody that competes directly or by stearic hindrance therewith for said protein.

9. An antibody as claimed in Claim 8 which is a monoclonal antibody.

10. An antibody as claimed in Claim 8 or 9 which is a class M immunoglobulin with a kappa-light chain.

11. A fragment of the antibody of any of Claims 8 to 11, which fragment binds specifically to the protein of the invention.

12. A method of producing an antibody to a protein comprising:

- innoculating an animal with a protein according to any of Claims 4 to 7, wherein the protein elicits an immune response in the animal to produce the antibody; and

- isolating the antibody from the animal.

13. A method of producing an antibody as claimed in Claim 11 in which the animal is innoculated with G-CCM cells of ECACC deposit No. 86022702.

14. A method for producing a hybridoma, comprising the step of innoculating a suitable subject with a protein according to any of Claims 4 to 7, or an antigenic fragment thereof, and fusing cells from the subject with a myeloma cell to produce the hybridoma.

15. A method according to Claim 14 in which the subject is innoculated with G-CCM cells of ECACC deposit No. 86022702.

16. A hybridoma cell obtainable according to the method of Claims 14 or 15.

17. A hybridoma cell of, or derived from, ECACC Deposit No. 03073001.

18. A monoclonal antibody obtainable from a hybridoma cell of, or derived from, ECACC Deposit No. 03073001.

19. A method of detecting an astrocytoma cell in a sample of human cells, which method comprises the step of contacting the cell sample with an antibody according to any of Claims 8 to 10, or 18, or a fragment thereof, and detecting those cells which have bound the antibody or fragment, wherein binding of the antibody or the fragment to a cell is indicative of an astrocytoma cell.

20. A method as claimed in Claim 19 in which the antibody is a monoclonal antibody.

21. A method of detecting a primary breast carcinoma cell in a sample of human cells, which method comprises the step of contacting the cell sample with an antibody according to any of Claims 8 to 10, or 18, or a fragment thereof, and detecting those cells which have bound the antibody or fragment, wherein binding of the antibody or the fragment to a cell is indicative of a primary breast carcinoma cell.

22. A method according to Claim 21 in which the antibody is a monoclonal antibody.

23. A diagnostic kit for diagnosing the presence of a cell selected from the group consisting of: astrocytoma cells; malignant melanoma secondary tumour cells; and primary breast carcinoma cells, the kit comprising a (primary) antibody according to any of Claims 8 to 10, or 18, or a fragment thereof.

24. A diagnostic kit as claimed in Claim 23 in which the antibody comprises a detectable label.

25. A diagnostic kit as claimed in Claim 23 in which the kit comprises a secondary antibody which specifically binds the (primary) antibody, which secondary antibody comprises a detectable label.

26. A biological targeting device comprising an antibody according to any of Claim 8 to 10, or 18, or a fragment thereof, and a therapeutic ligand.

27. A therapeutic antibody comprising an antibody according to any of Claims 8 to 10, or 18, or a fragment thereof.

28. A method of treating cancer in an individual by inducing apoptosis in cells in the individual which express an MQ1 protein, which method comprises a step of treating an individual with an antibody of any of Claims 8 to 10, or 18, or a fragment thereof.

29. A method according to Claim 28 in which the cancer is selected from the group consisting of: malignant astrocytomas ; malignant melanoma secondary tumours; and primary breast carcinomas.

30. A method according to Claim 28 or 29 in which the antibody is a monoclonal antibody.

31. A method as claimed in any of Claims 28 to 30 in which the antibody is humanised.

32. A polynucleotide which is anti-sense to an isolated nucleic acid sequence of any of Claims 1 to 3.

33. An anti-sense polynucleotide as claimed in Claim 32 comprising the sequence of Sequence ID No. 4.

34. An anti-sense polynucleotide as claimed in Claim 32 consisting of the sequence of Sequence ID

No. 4.

35. A method of treating cancer in an individual by inducing apoptosis in cells in the individual which express an MQ1 protein, which method comprises a step of treating an individual with an anti-sense polynucleotide of any of Claims 32 to 34.

36. A method according to Claim 35 in which the cancer is selected from the group consisting of: malignant astrocytomas; malignant melanoma secondary tumours; and primary breast carcinomas.